STATE OF MAINE
DEPARTMENT OF HUMAN SERVICES
DIVISION OF HEALTH ENGINEERING
11 STATE HOUSE STATION
AUGUSTA, MAINE
04333-0010

ANGUS S. KING, JR.
GOVERNOR

KEVIN W. CONCANNON
COMMISSIONER

September 24, 1999

Norweco
Attn.: Michael S. Price, R.S.
220 Republic Street
Norwalk, OH 44857-1196

Subject: Product Registration, Norweco Singulair Model 820

Dear Mr. Price:

Thank you for your letter dated August 16, 1999 regarding your company's product. Under provisions of Section 1902 of the Maine State Plumbing Code, Subsurface Wastewater Disposal Rules any manufacturer or distributor submitting a new product for code registration needs to demonstrate that:

1. The product is designed to protect public health, prevent the creation of any nuisance, and prevent environmental pollution to the same extent as comparable products presently authorized by Department for use in this code, and

2. The product is based on sound engineering principles and can be expected to provide the same level of protection to public health and the environment as offered by the authorized products presently authorized by the Department for use in this code.

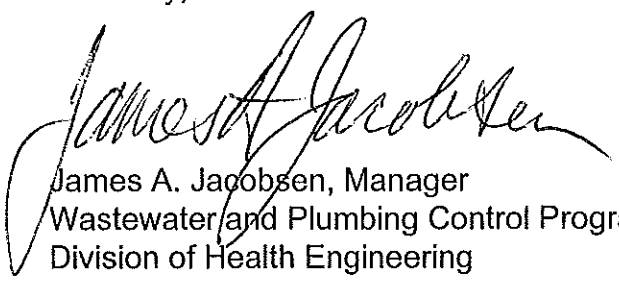
Such demonstration may be achieved by submitting a letter to the Division of Health Engineering from: a) a certifying organization, such as from National Sanitation Foundation (NSF), Building Officials and Code Administrators (BOCA), or other suitable organization stating their approval of the product, or b) the American Society for Testing and Materials (ASTM) indicating the requested product (used as indicated in the request) meets the ASTM standard as specifically listed in the appropriate section of any nationally recognized plumbing code, such as BOCA, IAPMO (same as International Plumbing Code), or equal.

According to the information you provided, Norweco Singulair Model 820 has received NSF Standard 40 approval. On that basis, the Division has determined that Norweco Singulair Model 820 is acceptable for use in the State of Maine, provided that it is installed, operated, and maintained in conformance with the manufacturer's directions.

Because installation and owner maintenance has a significant effect on the working order of onsite sewage disposal systems, including their components, the Division makes no representation or guarantee as to the efficiency and/or operation of Norweco Singulair Model 820. Further, registration of this product for use in the State of Maine does not represent Division preference or recommendation for this product over similar products.

If you have any questions please feel free to contact me at (207) 287-5695.

Sincerely,

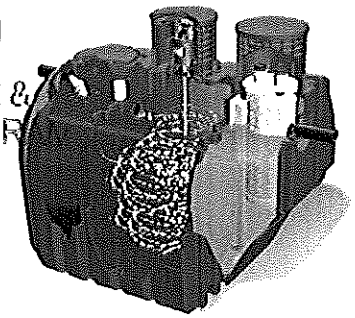


James A. Jacobsen, Manager
Wastewater and Plumbing Control Program
Division of Health Engineering
e-mail: james.jacobsen@state.me.us

xc: Product File

norweco®
Engineering the future of water and wastewater treatment

220 Republic Street
Norwalk, OH, U.S.A. 44857-1156
P 419.668.4471 F 419.663.5440
www.norweco.com



November 13, 2009

Mr. James Jacobson
Department of Human Services Division of Health Engineering
10 State House Sta
Augusta, ME 04333-0010

NORWECO'S SINGULAIR® GREEN ...
OFFERING NEW SOLUTIONS FOR ONSITE WASTEWATER CONCERNS

Dear Mr. Jacobson:

To support the efforts of environmental health professionals around the world, Norweco, Inc. is continuously developing innovative and industry leading products for the onsite wastewater industry. Our goal is to provide cost effective, environmentally conscious solutions to address the everyday issues that health officials face. With this goal in mind, we have extended our product line to include the new Singulair® Green polyethylene aerobic treatment system.

Singulair® Green:

- Merited NSF's "Class I" rating ensuring conformance to Standard 40 test protocol and is certified as a chlorine dosing device to meet NSF Standard 46.
- Backed by an industry leading 3-year warranty and lifetime exchange program.
- Treats up to 600 GPD and stands alone as the only system to employ polyethylene single-tank technology with integral pretreatment, flow equalization (surge control) and disinfection!
- Boasts a unique multi-directional ribbed design that is extremely durable, leak-proof and corrosion resistant while weighing less than 800 lbs.
- Can be used in conjunction with a multitude of approved effluent disposal and discharge options including drip and spray irrigation, mounds, raised filter beds and direct discharges.
- Offers a solution to installation concerns such as limited site access, small lot size and steep grades.

Keeping with our motto, "Progress Through Service Since 1906," Singulair® Green offers a progressive way to meet the ever-changing requirements of your community. Please take a moment to further explore Singulair® Green by reviewing the enclosed brochure. We encourage you to contact us at (419) 668-4471 to discuss how this new system can meet your local environmental needs and regulatory requirements. You can also explore our additional product offerings and wastewater treatment solutions online at www.norweco.com.

Sincerely,

NORWECO, INC.

Donald A. Bach
Director of Sales

Enclosures: Singulair® Green Brochure
Response Card

norweco®
Engineering the future of water and wastewater treatment

220 Republic Street
Norwalk, OH, U.S.A. 44857-1156
P 419.668.4471 F 419.663.5440
www.norweco.com

March 24, 2006

Mr. James Jacobsen, Manager
State of Maine Wastewater & Plumbing
10 State House Sta
Augusta, ME 04333-0010

Dear Mr. Jacobsen:

Reliable, affordable, management of onsite treatment and disposal systems is now a reality!

With MCD technology built into every Norweco Service Pro® control center, onsite treatment systems can now be remotely MONITORED for permit COMPLIANCE and DIAGNOSED for operational problems from a computer anywhere in the world. The Service Pro® monitoring system is today's answer for the protection of tomorrow's environment.

The enclosed literature describes the Service Pro® control center, monitoring system and Singulair® wastewater treatment plant. The Service Pro® control center is supplied as standard equipment at no additional charge with every Singulair® treatment plant. Once a conventional telephone line is connected to the control center, the operation of the entire treatment system can be monitored from the password protected Service Pro® website. Influent pumps, air delivery equipment, tank water level, disinfection systems and effluent pumps can all be monitored by Service Pro®.

You can be assured of proper treatment system operation without leaving your office and at no cost to your agency. That's right, no cost! This unique monitoring system collects and stores design, installation, maintenance and service contract information into a password protected database that can be accessed via the Service Pro® website. The inputted data from any onsite system permitted by your agency and equipped with a Service Pro® control center is accessible free of charge.

Review the enclosed literature and for additional information on how the Service Pro® control center and Singulair® wastewater treatment plant can change the way onsite systems are managed in your area, give us a call, send an email to customerservice@norweco.com or fill out and mail the enclosed postage-paid response card. Thank you for your consideration.

Sincerely,

NORWECO, INC.

Michael S. Price, RS
Vice President/Sales

MSP/rla

Enclosures: Singulair® Folder
Response Card

Maine Department of Health and Human Services
Maine Center for Disease Control and Prevention

Fax

To: Bob Fletcher **From:** James Jacobson, ES II

Fax: 207-287-3165 **Phone:** 207-287-5695

Date: 3/14/06 **Pages:** (including cover sheet) 3

Re: Singulair Approval

☐ **Urgent** ☑ **As Requested** ☐ **For Your Information** ☐ **Please Reply**

I could not locate the signed copy, so I printed out this clean copy. As we discussed, any A.T.U. with NSF 40 approval is automatically accepted in Maine, under our Subsurface Wastewater Disposal Rules.

STATE OF MAINE
DEPARTMENT OF HUMAN SERVICES
DIVISION OF HEALTH ENGINEERING
STATE HOUSE STATION
AUGUSTA, MAINE
04333-0010

ANGUS S. KING, JR.
GOVERNOR

KEVIN W. CONCANNON
COMMISSIONER

May 8, 2002

Norweco
Attn.: Joe Bush
220 Republic Street
Norwalk, OH 44857-1196

Subject: Request for Variance Points Allotment, Norweco BK 2000

Dear Mr. Bush:

Thank you for your letter of March 19, 2002 which we received on April 30, 2002. IN your letter you ask the Division to allot 20 points toward a First Time System Variance, for use of the Norweco BK 2000.

The Division no longer grants points to specific devices. The Maine State Plumbing Code, Subsurface Wastewater Disposal Rules now contains a table in the First Time System Variance section, which grants variance points based upon effluent quality:

TABLE 1900.11
USE OF ADVANCED TREATMENT DEVICES OR SYSTEMS

Strength of effluent (BOD_5 plus TSS)	Points
150 to 101 mg/l	5
100 to 51 mg/l	10
50 to 11 mg/l	15
10 mg/l or less	20

Therefore, any device which treats wastewater to a level of 10 mg/l or less of combined BOD_5 and TSS may take 20 points toward a First Time System Variance.

If you have any further questions, please feel free to contact me at 287-5695.

Sincerely

James A. Jacobsen

James A. Jacobsen, Environmental Specialist IV
Wastewater and Plumbing Control Program
Division of Health Engineering
e-mail: james.jacobsen@state.me.us

/jaj

xc: File

NORWALK WASTEWATER EQUIPMENT COMPANY
220 Republic Street
Norwalk, OH 44857-1196 U.S.A.
Phone (419) 668-4471 Fax (419) 663-5440
www.norweco.com

March 19, 2002

Mr. James A. Jacobson
Wastewater & Plumbing Control Program
Division of Health Engineering
10 State House Station
Augusta, ME 04333-0010

Dear Mr. Jacobson:

Thank you for your letter of April 9, 2001, granting the BK 2000 a 10 point value towards new system variances in the state of Maine. It is my understanding that the BK 2000 has now been used in Maine to achieve variances and to provide longevity for other new and existing systems. Meanwhile, Norweco requests that when used, the BK 2000 be granted a 20% reduction in disposal area sizing. This size reduction appears balanced with other product approvals and Section 603.0 of your Waste Water Disposal Rules.

In support of this request, we previously provided your department with documentation of successful completion of NSF Standard 46 test protocol, copies of Norweco's Singulair® 960 system without the BK device, and the NSF Standard 40 test results for the Singulair 960 system with the BK device. This submission should fulfill the requirements of the Maine Rules, section 1802.3, demonstrating that the device is based on sound engineering principals.

Concerning long term certified data for the Bio-Kinetic® wastewater management system; as you are aware, no certifying organization has established test protocols under which the Bio-Kinetic wastewater management system can be tested. Therefore, please refer to the data provided previously from a county program.

We thank you in advance for your favorable review of our request. While the Bio-Kinetic filter has been used as the integral part of the Singulair system for more than a decade, with several hundred thousand units installed worldwide, the BK 2000 itself is a one of a kind advanced treatment system, relatively new to the conventional wastewater disposal market.

If we can provide any further information or assistance, please contact me at your convenience.

Sincerely,

NORWECO, INC

Joe Bush
Product Distribution Manager

September 24, 1999

Norweco
Attn.: Michael S. Price, R.S.
220 Republic Street
Norwalk, OH 44857-1196

Subject: Product Registration, Norweco Bio-Kinetic Wastewater Management System

Dear Mr. Price:

Thank you for your letter dated August 16, 1999 regarding your company's product. Under provisions of Section 1902 of the Maine State Plumbing Code, Subsurface Wastewater Disposal Rules any manufacturer or distributor submitting a new product for code registration needs to demonstrate that:

1. The product is designed to protect public health, prevent the creation of any nuisance, and prevent environmental pollution to the same extent as comparable products presently authorized by Department for use in this code, and

2. The product is based on sound engineering principles and can be expected to provide the same level of protection to public health and the environment as offered by the authorized products presently authorized by the Department for use in this code.

Such demonstration may be achieved by submitting a letter to the Division of Health Engineering from: a) a certifying organization, such as from National Sanitation Foundation (NSF), Building Officials and Code Administrators (BOCA), or other suitable organization stating their approval of the product, or b) the American Society for Testing and Materials (ASTM) indicating the requested product (used as indicated in the request) meets the ASTM standard as specifically listed in the appropriate section of any nationally recognized plumbing code, such as BOCA, IAPMO (same as International Plumbing Code), or equal.

According to the information you provided, Norweco Bio-Kinetic Wastewater Management System has received Standard 40 approval NSF, as part of the Norweco Singulair System. On that basis, the Division has determined that Norweco Bio-Kinetic Wastewater Management System is acceptable for use in the State of Maine, provided that it is installed, operated, and maintained in conformance with the manufacturer's directions.

Because installation and owner maintenance has a significant effect on the working order of onsite sewage disposal systems, including their components, the Division makes no representation or guarantee as to the efficiency and/or operation of Norweco Bio-Kinetic Wastewater Management System. Further, registration of this product for use in the State of Maine does not represent Division preference or recommendation for this product over similar products.

If you have any questions please feel free to contact me at (207) 287-5695.

Sincerely,

James A. Jacobsen, Manager
Wastewater and Plumbing Control Program
Division of Health Engineering
e-mail: james.jacobsen@state.me.us

xc: Product File

NORWECO
NORWALK WASTEWATER EQUIPMENT COMPANY

FACSIMILE TRANSMISSION LETTER

DATE: September 28, 1999

TO: Mr. James Jacobson
Maine Department of Health

FAX #: 207-287-3165

FROM: Michael S. Price, R.S.,
Vice President, Sales

TOTAL NUMBER OF PAGES INCLUDING COVER: 1

NOTE: If you do not receive all pages, please contact our Facsimile Operator at (419) 668-4471.

COMMENTS:

Dear Mr. Jacobson:

On several occasions, we have sent to you information on the Norweco Bio-Kinetic® Wastewater Management System. Along with our information, we requested your approval for use of the Bio-Kinetic® Wastewater Management System in Maine. Should you require additional information in order to grant the necessary approval, please let us know. We are most anxious to obtain the approval and look forward to hearing from you soon. Thank you for your consideration in this matter.

220 Republic Street Norwalk, OH 44857
(419) 668-4471 Fax (419) 663-5440

SIEGMUND ENVIRONMENTAL SERVICES, INC INTRODUCES THE SINGULAIR WASTEWATER TREATMENT SYSTEM

A. PRODUCT BACKGROUND

The SINGULAIR wastewater treatment system is designed to treat domestic sewage for individual homes, clusters of homes or commercial developments. The system was patented in the late 1970's, improved over the years and the most advanced model is the recently introduced Model 960 Bio-Kinetic. The system received Class 1, Standard 40 certification by the National Sanitation Foundation International after an exhaustive testing program. The SINGULAIR is approved in most of the states in the United States and received nation-wide approvals in many foreign countries.

THE MODEL 960 WAS CERTIFIED TO HAVE DEMONSTRATED THE FOLLOWING EFFLUENT QUALITY: BOD 6 MG/L, SS 10 MG/L. THE EFFICIENCY IN TKN REMOVAL IS 85%.

The SINGULAIR is constructed of 5,000 psi reinforced concrete. The tank is delivered to the project site ready for installation, similar to the septic tank it replaces.

B. PROCESS DESCRIPTION

The SINGULAIR utilizes the extended aeration method of wastewater treatment to achieve the level of treatment demonstrated by the NSFI Certification. The treatment process takes place in the three-compartment precast concrete tank. The first compartment is an anaerobic pretreatment chamber, the second is the aeration chamber and the third is the settling and filtration chamber.

1. Pretreatment Chamber

The first chamber acts as an anaerobic settling area for the incoming wastewater stream. In this chamber the heavy solids settle and the anaerobic decomposition process preconditions the wastewater during its approximately 12 hours of residence. The outlet of the pretreatment camber is equipped with a cast-in-place Tee that extends vertically into the liquid so that only the preconditioned and equalized flow from mid-height in

the chamber is displaced into the next compartment. The Tee and the submerged transfer port are sized to handle the peak flows without high velocities that would transfer settled solids. A removable inspection cover is placed at the top of the pretreatment chamber to allow the inspection of the depth of settled solids and the precast Tee.

2. Aeration Chamber

The aeration chamber provides in excess of twenty-four hours of detention time during which the wastewater is aerated. Aeration is performed via the action of the aerator motor and an aspirator shaft which draws the air into the water. A cast-in vent cap in the access riser's cover allows air to flow freely into the chamber. The aeration system is of sufficient size to provide a minimum of 5 cubic meter of air per kilogram of BOD. The aeration chamber's length-width-depth ratio is designed to ensure uniform mixing for optimal treatment.

3. Final clarification chamber

The clarifier is designed to provide satisfactory settling and clarification for the aerated wastewater. In the inlet zone at the bottom of the chamber all transfer turbulence is dissipated and the liquid is hydraulically displaced in an upward direction. In the mid-zone of the chamber settling takes place and the solids deposit on the slanted sides of the hopper and slide down to the inlet zone where the turbulence returns it to the aeration chamber for further processing. This recirculation of the activated sludge if further enhanced by the Bio- Static sludge return located in the clarification chamber.

The clarified liquid is contained in the final settling zone at the top where it enters the filtration system through the flow equalizer ports.

4. Bio-Kinetic filter

The Bio-Kinetic filter is located totally within the clarification chamber but the flow equalizing ports are within the final settling zone. The filter provides flow equalization, filtration, optional chlorination and dechlorination and final settling to ensure acceptable effluent quality. The assembly consists of the following elements: a micronically woven filter fabric, baffled perimeter settling zone, flow equalization

ports, flow deck, level indicator and adjustment lugs, optional chlorine tablet feed tube, contact basin, thirty-seven baffled chamber settling plates, effluent stilling well, discharge weir, optional dechlorination tablet feed tube and the outlet connection.

All components are manufactured with inert synthetic materials or corrosion resistant stainless steel, assembled into the cylindrical filter and connected to a plastic outlet coupling cast into the tank.

The optional chlorine tablet feed tube is totally inside the filter housing making contact with water outside the filter impossible. The incoming clarified liquid makes contact with the lowest tablet in the tube and the tablet slowly dissolves and provides the disinfection necessary during a minimum of twenty minute mixing time. In a similar fashion, the chlorinated liquid contacts the dechlorinating tablet in the second feed tube prior to discharge to remove the residual chlorine in the water.

5. Mechanical aerator

The air and the mixing needed during the treatment process is provided by the aerator. It is installed in the concrete riser at the center of the aeration chamber. The aerator motor is supplied with plated mounting brackets, moisture resistant electrical connector, foam deflector and a stainless steel aspirator shaft with a plastic aspirator. Only the aspirator and the lower portion of the shaft is in contact with the wastewater. There are no other submerged components such as pumps, motors, bearings or air piping. The motor is a single phase 1/6 HP, 115V, 60 Hz unit operating at 1,720 RPM. Operation time is adjustable but the NSFI certification is with a 50% running time (30 minutes of every hour).

6. Electrical control panel

Aerator controls are mounted in a weather-tight plastic enclosure for protection. Included are: manual reset circuit breaker, on-off-automatic selector switch, adjustable timer mechanism and an audible/visual warning system to report malfunction.

7. Capacities

The SINGULAIR Model 960 is available in a number of treatment volume capacities. The various models may be used individually or in parallel format to provide treatment to larger volumes of wastewater.

Model	Capacity	Capacity	Width	Length	Depth
960/N	1.9 M3	500 gal.	168 cm 5'-6"	282 cm 9'-3"	183 cm 6'-0"
960/2.8	2.8 M3	750 gal.	168 cm 5'-6"	282 cm 9'-3"	213 cm 7'-0"
960/3.8	3.8 M3	1,000 gal	168 cm 5'-6"	282 cm 9'-3"	183 cm 6'-0"
960/4.7	4.7 M3	1,250 gal	168 cm 5'-6"	282 cm 9'-3"	213 cm 7'-0"
960/5.7	5.7 M3	1,500 gal	168 cm 5'-6"	282 cm 9'-3"	244 cm 8'-0"

The SINGULAIR wastewater treatment system is locally built, sold and serviced. For further information please contact:

SIEGMUND ENVIRONMENTAL SERVICES, INC.
49 Pavilion Avenue
Providence, Rhode Island 02905 USA
Tel. (401) 785-0130 Fax. (401) 785-3110
E-mail: sesi@siegmundgroup.com
www.siegmundgroup.com

Affiliated offices in the West Indies, Russia, Hungary, Slovakia and Yugoslavia.

C. CONSTRUCTION INFORMATION

In appearance and from the transportation or setting viewpoint the Singulair is very similar to a standard septic tank.
Detailed installation instructions are provided with each purchase and the assistance of Siegmund Environmental Services, Inc. Is available at no additional cost to the owner.

1. Transportation.

The Singulair is transported to the site on a boom truck. Generally the top and bottom castings are already assembled and sealed, requiring minimum on-site work.

2. Setting.

The Singulair is generally set by the driver of the boom truck into the excavation prepared by the installer of the entire septic system. The excavation must be properly prepared to the right grade: the bottom should be level with a minimum of 6 inches of compacted gravel or crushed stone. The excavation must also be accessible for the boom truck to set the tank.

3. Electricity.

It is the responsibility of the installer to wire the controller and to provide a dedicated 15 A circuit. Detailed placement instructions and wiring diagram is supplied with each controller.

4. Installation of mechanical components.

The mechanical components, the aerator and the filter, are installed by authorized representatives of Siegmund Environmental Services, Inc. after all plumbing and piping is in place and the tank is filled with water. The installation of the equipment is also the start-up procedure as the system is completed and ready to treat the domestic wastewater.

D. OPERATION AND MAINTENANCE

With the purchase of a Singulair the owner is provided with a **2-year** free maintenance and inspection service contract. During the 24 months after the installation of the mechanical components authorized representatives of Siegmund Environmental Services, Inc. visit the installation to check its performance and to perform the prescribed service. The visits are in 6 month intervals unless local or state requirements dictate otherwise.

Continuation of the service contract is available for each installation for a yearly fee.

A detailed Owner's Manual and a copy of the 50-year warranty policy is also provided with each purchase to familiarize the home owner with the operation of the Singulair. In essence, the home owner only needs to observe some simple instructions (such as the use of cleaning chemicals) to assure that the Singulair operate at the expected performance level.

E. MISCELLANEOUS INFORMATION

1. Permitting.

The Singulair has received permits in a large number of states, including Massachusetts, Rhode Island, New Hampshire, New York, Florida, Ohio, etc., about 35 in total. In addition the Singulair is an approved product in several foreign countries including Canada.

2. Delivery time.

In general the 500 gallons per day system is in stock and can be shipped in a few days after the order is received. Larger capacity systems are constructed to order and require some lead time.

3. Costs.

For pricing and delivery information please call our office.

Annual electric consumption of a 500 GPD Singulair is in the range of $60-$80.

4. Effluent disposal.

The disposal of the effluent must be in accordance with local or state requirements. In New England the effluent must be disposed of underground, utilizing some approved infiltration device. In several states leachfield reduction is permitted with the use of the Singulair.

5. Disinfection.

Disinfection is required only for surface disposal or disposal into storm drain systems. Since these are not allowed in New England, the optional disinfection system is not activated locally.

6. System applicability.

The Singulair wastewater treatment system can be used for single family homes, for multi-family buildings, for clustered residential units or for commercial establishments.

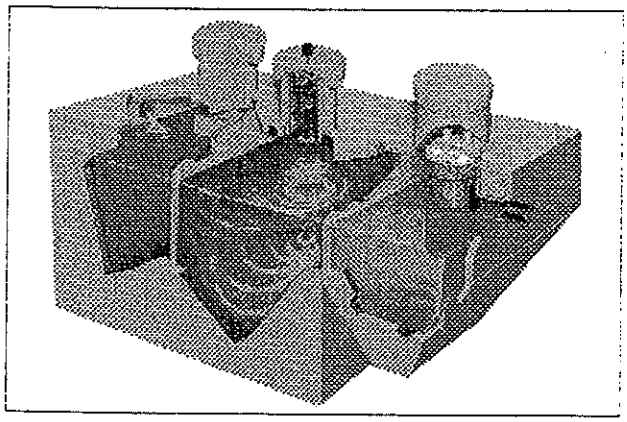
Singulairs have been installed for motels, restaurants, shopping centers, group homes and similar in addition to residential use. The limiting factor is primarily the quality of raw sewage: influent must be of domestic wastewater quality, appropriate for treatment by extended aeration.

7. Additional information.

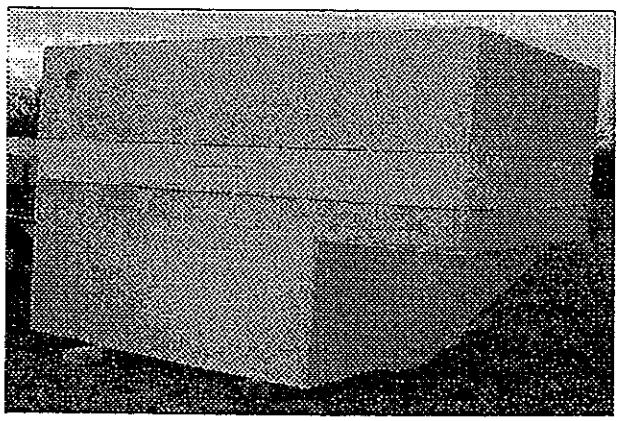
Design assistance and additional information on the Singulair wastewater treatment system is available from Siegmund Environmental Services, Inc. Our address, phone and fax numbers, email and web site address can be found on page 4 of this informational material.

A typical installation for a single family home

Installation in parallel format to serve multiple users



Singulair, cut-away view



Singulair ready for shipping

WASTEWATER TECHNOLOGY

Report on Evaluation of Norweco, Inc. SINGULAIR Model 820 Individual Home Wastewater Treatment System Report No. S40-8-1

under the provisions of NSF Standard 40 Relating to Individual Aerobic Wastewater Treatment Plants

National Sanitation Foundation
3475 Plymouth Road
P.O. Box 1468
Ann Arbor, Michigan 48106 USA

WASTEWATER TECHNOLOGY

Report on Evaluation of
Norweco Inc.
Singulair® Model 960
Wastewater Treatment System

under the provisions of
NSF Standard 40
on Individual Aerobic
Wastewater Treatment Plants

NSF *International*
3475 Plymouth Road
PO Box 130140
Ann Arbor, Michigan 48113-0140 USA